

WHAT IS CLAIMED IS:

1. A water purification cartridge, comprising:
 - (a) a first porous layer having an inner surface and an outer surface;
 - (b) a porous purification block having an outer surface and an inner surface, and at least partially enclosed by the first porous layer;
 - (c) a cavity between the inner surface of the first porous layer and the outer surface of the porous purification block and in fluid communication with the porous purification block; and
 - (d) a powdered purification media disposed within the cavity.
2. The water purification cartridge of claim 1, wherein:
the first porous layer is sufficiently porous to allow water to flow from its outer surface through the porous layer to its inner surface, but not sufficiently porous to allow significant quantities of powdered purification media to pass from the inner surface, through the porous layer, to its outer surface.
3. The water purification cartridge of claim 1, wherein the powdered purification media comprises activated carbon.
4. The water purification cartridge of claim 3, wherein the activated carbon comprises catalytic char.

5. The water purification cartridge of claim 3, wherein the activated carbon is selected from the group consisting of wood-based carbon and coal-based carbon.
6. The water purification cartridge of claim 1, wherein the powdered purification media comprises zirconia.
7. The water purification cartridge of claim 1, wherein the powdered purification media comprises one or more materials selected from the group consisting of an alumina, a silicate, and a zeolite.
8. The water purification cartridge of claim 1, wherein the powdered purification media has a particle size distribution ranging from about 50 mesh to about 375 mesh.
9. The water purification cartridge of claim 8, wherein the powdered purification media has a particle size distribution ranging from about 80 mesh to about 325 mesh.
10. The water purification cartridge of claim 8, wherein the powdered purification media has a particle size distribution ranging from about 50 mesh to about 200 mesh.
11. The water purification cartridge of claim 1, wherein the powdered purification media has a particle size distribution ranging from about 40 μm to about 250 μm .

12. The water purification cartridge of claim 1, wherein the porous filtration block comprises activated carbon disposed in a polymeric binder.

13. The water purification cartridge of claim 1, wherein the porous filtration block comprises a porous polymeric block.

14. The water purification cartridge of claim 13, wherein the porous polymeric block comprises a porous high density polyethylene block or a porous low density polyethylene block.

15. The water purification cartridge of claim 14, wherein the high density polyethylene block has a micron rating ranging between about 0.5 and about 10.

16. The water purification cartridge of claim 1, wherein the first porous layer comprises a porous high density polyethylene layer.

17. The water purification cartridge of claim 1, further comprising a second porous layer disposed adjacent to the inner surface of the porous filtration block, and in fluid communication with the porous filtration block.

18. The water purification cartridge of claim 7, wherein the powdered purification media is selected from the group consisting of a titanium, zeolite, zeolite gel, magnesium hydroxide, and ion exchange resin.

19. The water purification cartridge of claim 1, wherein the packed density of porous purification material ranges from about 0.2 g/cc to about 1.3 g/cc.